REMARKS

The Examiner is thanked for the performance of a thorough search. By this amendment, Claims 1-9, 11, 13-17, 19, 21, 23-27 and 29 have been canceled, Claims 10 and 20 have been amended, and new Claims 30-43 have been added. Hence, Claims 10, 12, 18, 20, 22, 28 and 30-43 are pending in this application. The amendments to the claims do not add any new matter to this application. All issues raised in the Office Action mailed November 6, 2002 are addressed hereinafter.

ALLOWABILITY OF CLAIMS

The indicated allowability of Claims 14, 15, 23 and 25 is gratefully acknowledged and these claims have been rewritten in independent form including any intervening claims as indicated hereinafter.

Claim 10 has been amended to include the limitations of Claim 14. Thus, Claim 10 and dependent Claim 12 should now be in condition for allowance.

Claim 20 has been amended to include the limitations of Claim 23. Thus, Claim 20 and dependent Claim 22 should now be in condition for allowance.

New Claims 30 and 31 contain limitations similar to Claims 10 and 12, except in the context of a computer-readable medium. New Claims 30 and 31 should therefore be in condition for allowance.

New Claim 32 includes the limitations of Claims 10, 13 and 15. Thus, Claim 32 and dependent Claims 33-35 should be in condition for allowance.

New Claim 36 includes the limitations of Claims 20, 24 and 25. Thus, Claim 36 and dependent Claims 37-39 should be in condition for allowance.

New Claims 40-43 contain limitations similar to Claims 32-35, except in the context of a computer-readable medium. New Claims 40-43 should therefore also be in condition for allowance.

Claims 18 and 28 are believed to be patentable over the references cited and relied upon as set forth hereinafter.

REJECTION OF CLAIMS 2, 8, 11, 14, 15, 17, 23 AND 25 UNDER 35 U.S.C. §112, SECOND PARAGRAPH

Claims 2, 8, 11, 14, 15, 17, 23 and 25 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which application regards as the invention. This rejection is now moot since all of these claims have been canceled from the application. It should be noted, however, that the requested corrections have been made to claims that have been amended to incorporate any of the limitations of Claims 2, 8, 11, 14, 15, 17, 23 or 25. Reconsideration and withdrawal of the rejection of Claims 2, 8, 11, 14, 15, 17, 23 and 25 under 35 U.S.C. §112, second paragraph is respectfully requested.

REJECTION OF CLAIMS 1, 7, 10, 12, 13, 20, 22 AND 24 UNDER 35 U.S.C. §102(b)

Claims 1, 7, 10, 12, 13, 20, 22 and 24 were rejected under 35 U.S.C. §102(b) as being anticipated by *DeSomer*, U.S. Patent No. 5,173,901. This rejection is now moot with respect to canceled Claims 1, 7, 13 and 24. Claim 10 has been amended to include the limitations of allowable Claim 14 and Claim 20 has been amended to include the limitations of allowable Claim 23. Claim 12 depends from Claim 10 and Claim 22 depends from Claim 20.

It is therefore respectfully submitted that Claims 10, 12, 20 and 22, as amended, are patentable over *DeSomer*. Accordingly, reconsideration and withdrawal of the rejection of

Claims 10, 12, 20 and 22 under 35 U.S.C. §102(b) as being anticipated by *DeSomer* is respectfully requested.

REJECTION OF CLAIMS 18 AND 28 UNDER 35 U.S.C. §103(a)

Claims 18 and 28 were rejected under 35 U.S.C. §103(a) as being unpatentable over *DeSomer* in view of *Humphrey*, U.S. Patent No. 6,157,657. It is respectfully submitted that Claims 18 and 28 are patentable over *DeSomer* and *Humphrey* for at least the reasons provided hereinafter.

Claim 18 recites a method for communicating at least first and second digital data streams over a communications link from a source to a destination that requires the steps of:

> "receiving synchronous data in a first FIFO at a synchronous data rate;
> receiving asynchronous data in a second FIFO at an asynchronous data rate;
> clocking data out from said first FIFO onto said communications link at a first output data rate;
> clocking data out from said second FIFO onto said communications link at a second output data rate wherein said second data rate equals, on average, said asynchronous data rate."

It is respectfully submitted that Claim 18 includes limitations that are not taught or suggested by *DeSomer* and *Humphrey*, alone or in combination. For example, it is respectfully submitted that *DeSomer* and *Humphrey* do not teach or suggest "clocking data out from said second FIFO onto said communications link at a second output data rate *wherein said second data rate equals, on average, said asynchronous data rate*" (emphasis added).

In *DeSomer*, the synchronous stream STM received by the MUX contains synchronous cells (STM cells) that occupy time slots of a time frame with a time slot frequency of f_2. The asynchronous stream ATM received by the MUX contains asynchronous cells (ATM cells) that occupy time slots of a time frame with a time slot frequency of f_3. The output portion of

transmitter circuit TC1 operates at the time slot frequency of f_1. Thus, the ATM cells in the multiplexed stream output by the MUX also have a time slot frequency of f_1.

In the examples provided, f_3 is twice f_2 and f_1 is the sum of f_3 and f_2. Therefore, the frequency f_1, at which the ATM cells are output onto the communications link L1, is one and one half times the frequency f_3 at which ATM cells are received by the MUX. Thus, *DeSomer* does not teach or suggest "clocking data out from said second FIFO onto said communications link at a second output data rate wherein said second data rate equals, on average, said asynchronous data rate" as is required by Claim 18.

Humphrey was not relied upon as teaching or suggesting the aforementioned limitation and it is respectfully submitted that *Humphrey* does not teach or suggest this limitation. It is therefore respectfully submitted that Claim 18 is patentable over *DeSomer* and *Humphrey*, alone or in combination. Claim 28 includes limitations similar to the limitations of Claim 18, except in the context of an apparatus.

It is therefore respectfully submitted that Claims 18 and 28 are patentable over *DeSomer* and *Humphrey*, alone or in combination. Accordingly, reconsideration and withdrawal of the rejection of Claims 18 and 28 under 35 U.S.C. §103(a) as being unpatentable over *DeSomer* and *Humphrey* is respectfully requested.

REJECTION OF CLAIMS 3, 8, 11, 16, 17, 21, 26 AND 27 UNDER 35 U.S.C. §103(a)

Claims 2, 8, 11, 16, 17, 21, 26 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over *DeSomer* in view of *Humphrey*. This rejection is now moot since all of these claims have been canceled from this application. Accordingly, reconsideration and withdrawal of the rejection of Claims 2, 8, 11, 16, 17, 21, 26 and 27 under 35 U.S.C. §103(a) as being unpatentable over *DeSomer* and *Humphrey* is respectfully requested.

REJECTION OF CLAIMS 3, 4 AND 9 UNDER 35 U.S.C. §103(a)

Claims 3, 4 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over *DeSomer* in view of *Kumar*, U.S. Patent No. 6,970,069. This rejection is now moot since all of these claims have been canceled from this application. Accordingly, reconsideration and withdrawal of the rejection of Claims 3, 4 and 9 under 35 U.S.C. §103(a) as being unpatentable over *DeSomer* in view of *Kumar* is respectfully requested.

REJECTION OF CLAIMS 5 AND 6 UNDER 35 U.S.C. §103(a)

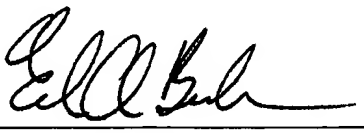
Claims 5 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over *DeSomer* in view of *Kumar* and further in view of *Thornton*, U.S. Patent No. 6,421,393. This rejection is now moot since these claims have been canceled from this application. Accordingly, reconsideration and withdrawal of the rejection of Claims 5 and 6 under 35 U.S.C. §103(a) as being unpatentable over *DeSomer* in view of *Kumar* and further in view of *Thornton* is respectfully requested.

It is respectfully submitted that all of the pending claims are in condition for allowance and the issuance of a notice of allowance is respectfully requested. If there are any additional charges, please charge them to Deposit Account No. 50-1302.

The Examiner is invited to contact the undersigned by telephone if the Examiner believes that such contact would be helpful in furthering the prosecution of this application.

Respectfully submitted,

HICKMAN PALERMO TRUONG & BECKER LLP



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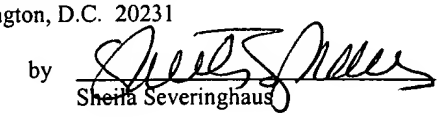
on January 14, 2003 by 
Sheila Severinghaus

CLAIMS IN "MARKED UP" FORM

1. (CANCELED) A method for communicating at least first and second digital data streams on a communications link from a source to a destination comprising:

time division multiplexing said first and second data streams wherein said first data stream is a synchronous data stream and said second data stream is an asynchronous data stream, to define a multiplexed stream; and

transmitting said multiplexed stream over said communications link.

2. (CANCELED) A method as claimed in claim 1 further comprising detecting that said second data stream is an asynchronous data stream.

3. (CANCELED) A method as claimed in claim 1 further comprising determining the data rate of at least one of said first and second data streams.

4. (CANCELED) A method as claimed in claim 3 wherein said step of determining comprises measuring a duration of at least one bit of said first and second data streams.

5. (CANCELED) A method as claimed in claim 3 wherein said step of determining includes over-sampling of said one of said first and second data streams.

6. (CANCELED) A method as claimed in claim 3 wherein said step of determining includes sampling of said one of said first and second data streams at a rate at least about twice the highest anticipated data rate of said one of said first and second data streams.

7. (CANCELED) Apparatus for communicating at least first and second digital data streams on a communications link from a source to a destination comprising:

means for a time division multiplexing said first and second data streams wherein said first data stream is a synchronous data stream and said second data stream is an asynchronous data stream, to define a multiplexed stream; and

means for transmitting said multiplexed stream over said communications link.

8. (CANCELED) Apparatus as claimed in claim 7 further comprising means for detecting that said second data stream is an asynchronous data stream.

9. (CANCELED) Apparatus as claimed in claim 7 further comprising means for determining the data rate of at least one of said first and second data streams.

10. (ONCE AMENDED) A method for communicating at least first and second digital data streams over a communications link from a source to a destination comprising:

receiving said first data stream, said first data stream being a synchronous data stream having a first average data bit rate;

clocking said first data stream into a first [data rate] FIFO buffer;

receiving said second data stream, said second data stream being an asynchronous data stream having a second average data bit rate;

clocking said second data stream into a second [data rate] FIFO buffer;

transmitting, over said [communication] communications link, an output bit stream, at an output data bit rate, [wherein said output bit stream includes bits output from said first data rate buffer and said bit stream also includes bits from said second data rate buffer.] wherein each J^{th} bit of a sequential plurality of bits in the first data stream are bits sequentially output from the first FIFO buffer, to define first bits of the output bit stream, and wherein at least one bit of the sequential plurality of

bits, other than the first bits, is output from the second FIFO buffer, wherein the sequential plurality of time periods includes at least first and second subpluralities of time periods.

11. (CANCELED) A method as claimed in claim 10 wherein at least one of said first and second data rate buffers is a first-in-first-out (FIFO) buffer.

12. (NOT AMENDED) A method as claimed in claim 10 wherein said output bit stream includes time division multiplexing of at least said first data stream and second data stream.

13. (CANCELED) A method as claimed in claim 10 wherein said data rate buffers define a next out data bit for outputting in response to a clock-out signal.

14. (CANCELED) A method as claimed in claim 10 wherein each J^{th} bit of a first sequential plurality of bits in said data stream, are bits sequentially output from said first FIFO, to define first bits of said output stream, and wherein at least one bit of said first sequential plurality of bits, other than said first FIFO bits, is output from said second FIFO said first sequential plurality of time periods including at least first and second subpluralities of time periods.

15. (CANCELED) A method as claimed in Claim 13 wherein said output stream includes at least a first sequential plurality of time period for transmitting a data bit during each said time period, and wherein said step of transmitting comprises:

a. Outputting the next-out bit from said first FIFO and transmitting said communications link during one of said first subplurality of said time period;

b. Following step a, transmitting a bit, during one of said second subplurality of said time period;

repeating steps a and b to define a plurality of iterations of step a and step b wherein at least some of the bits transmitted during iterations of step b are output from said second FIFO.

16. (CANCELED) A method as claimed in Claim 11 wherein all bits transmitted during iterations of step b are output from said second FIFO.

17. (CANCELED) A method as claimed in Claim 11 wherein said first subplurality comprises every other time period of said first sequential plurality of time periods.

18. (NOT AMENDED) A method for communicating at least first and second digital data streams over a communications link from a source to a destination comprising:

receiving synchronous data in a first FIFO at a synchronous data rate;

receiving asynchronous data in a second FIFO at an asynchronous data rate;

clocking data out from said first FIFO onto said communications link at a first output data rate;

clocking data out from said second FIFO onto said communications link at a second output data rate wherein said second data rate equals, on average, said asynchronous data rate.

19. (CANCELED) A method for time division multiplexing first and second signals onto a TDM signal having a plurality of time periods, including even-numbered periods and odd-numbered periods, the method comprising:

determining a ratio between the data rate of said first signal and the data rate of said second signal;

using even-numbered periods of said TDM signal for communicating data bits from said first signal and using odd numbered periods of said TDM signal for communicating data from said second signal wherein a next sequential bit of said second signal is transmitted by said TDM signal for every K sequential bits of said first signal transmitted by a said TDM signal;

wherein the value of K alternates between the integral portion of said ratio and one greater than the integral portion of said ratio until an accumulated skew between an effective data rate of the even numbered periods of the TDM signal and the odd numbered periods of the TDM signal exceeds about one half a period of said first input signal whereupon output of the next sequential bit of the second input signal, for communication via the TDM signal, is delayed by two TDM periods.

20. (ONCE AMENDED) Apparatus for communicating at least first and second digital data streams over a communications link from a source to a destination, said first data stream being a synchronous data stream having a first average data bit rate, said second data stream being an asynchronous data stream having a second average data bit rate, comprising:

means for clocking said first data stream into a first [data rate] FIFO buffer;

means for clocking said second data stream into a second [data rate] FIFO buffer;

means for transmitting, over said communication link, an output bit stream, at an output data bit rate, wherein [said output bit stream includes bits output from said first

data rate buffer and said bit stream also includes bits from said second data rate buffer.] each J^{th} bit of a sequential plurality of bits in said first data stream are bits sequentially output from the first FIFO buffer, to define first bits of said output bit stream, and wherein at least one bit of said sequential plurality of bits, other than said first bits, is output from the second FIFO buffer.

21. (CANCELED) Apparatus as claimed in claim 20 wherein at least one of said first and second data rate buffers is a first-in-first-out (FIFO) buffer.

22. (NOT AMENDED) Apparatus as claimed in claim 20 wherein said output bit stream is provided by time division multiplexing of at least said first data stream and second data stream.

23. (CANCELED) Apparatus as claimed in claim 20 comprising means for controlling output of data, wherein each J^{th} bit of a first sequential plurality of bits in said data stream are bits sequentially output from said first FIFO, to define first bits of said output stream, and wherein at least one bit of said first sequential plurality of bits, other than said first bits, is output from said second FIFO, said first sequential plurality of time periods including at least first and second subpluralities of time periods.

24. (CANCELED) Apparatus as claimed in claim 20 wherein said data rate buffers define a next out data bit for outputting in response to a clock-out signal.

25. (CANCELED) Apparatus as claimed in Claim 24 wherein said output stream includes at least a first sequential plurality of time period for transmitting a data bit during each said time period, and wherein said means for transmitting comprises:

a. means for outputting the next-out bit from said first FIFO and transmitting said communications link during one of said first subplurality of said time period;

b. means for transmitting a bit, during one of said second subplurality of said time periods;

means for repeating operation of said means for outputting and said means for transmitting a bit, wherein at least some of the bits transmitted during one of said second subplurality of time periods are output from said second FIFO.

26. (CANCELED) Apparatus as claimed in Claim 21 wherein all bits transmitted during any of said second subplurality of time periods are output from said second FIFO.

27. (CANCELED) Apparatus as claimed in Claim 21 wherein said first subplurality comprises every other time period of said first sequential plurality of time periods.

28. (NOT AMENDED) Apparatus for communicating at least first and second digital data streams over a communications link from a source to a destination comprising:

means for receiving synchronous data in a first FIFO at a synchronous data rate;

means for receiving asynchronous data in a second FIFO at an asynchronous data rate;

means for clocking data out from said first FIFO onto said communications link at a first output data rate;

means for clocking data out from said second FIFO onto said communications link at a second output data rate wherein said second data rate equals, on average, said asynchronous data rate.

29. (CANCELED) Apparatus for time division multiplexing first and second signals onto a TDM signal having a plurality of time periods, including even-numbered periods and odd-numbered periods, the apparatus comprising:

means for determining a ratio between the data rate of said first signal and the data rate of said second signal;

means for communicating data bits from said first signal using even-numbered periods of said TDM signal and for communicating data from said second signal using odd numbered periods of said TDM signal wherein a next sequential bit of said second signal is transmitted by said TDM signal for every K sequential bits of said first signal transmitted by a said TDM signal;

means for selecting the value of K, alternating between the integral portion of said ratio and one greater than the integral portion of said ratio until an accumulated skew between an effective data rate of the even numbered periods of the TDM signal and the odd numbered periods of the TDM signal exceeds about one half a period of said first input signal whereupon output of the next sequential bit of the second input signal, for communication via the TDM signal, is delayed by two TDM periods.

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30. (NEW) A computer-readable medium for communicating at least first and second digital data streams over a communications link from a source to a destination, the computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

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receiving the first data stream, the first data stream being a synchronous data stream having a first average data bit rate;

clocking the first data stream into a first FIFO buffer;

receiving the second data stream, the second data stream being an asynchronous data stream having a second average data bit rate;

clocking the second data stream into a second FIFO buffer;

transmitting, over the communications link, an output bit stream, at an output data bit rate, wherein each J^{th} bit of a sequential plurality of bits in the first data stream are bits sequentially output from the first FIFO buffer, to define first bits of the output bit stream, and wherein at least one bit of the sequential plurality of bits, other than the first bits, is output from the second FIFO buffer, wherein the sequential plurality of time periods includes at least first and second subpluralities of time periods.

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31. (NEW) A computer-readable medium as recited in Claim 30, further comprising one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to cause the output bit stream to include time division multiplexing of at least the first data stream and the second data stream.

32. (NEW) A method for communicating at least first and second digital data streams over a communications link from a source to a destination comprising:

receiving the first data stream, the first data stream being a synchronous data stream having a first average data bit rate;

clocking the first data stream into a first data rate buffer;

receiving the second data stream, the second data stream being an asynchronous data stream having a second average data bit rate;

clocking the second data stream into a second data rate buffer;

wherein the first and second data rate buffers define a next out data bit for outputting in response to a clock-out signal; and

transmitting, over the communication link, an output bit stream, at an output data bit rate, wherein the output bit stream includes a sequential plurality of time periods for transmitting a data bit and wherein the transmitting includes

a) outputting the next out data bit from the first data rate buffer on the communications link during one of a first subplurality of the sequential plurality of time periods;

b) transmitting a bit, during a second subplurality of the sequential plurality of time periods; and

repeating steps a and b to define a plurality of iterations of step a and step b wherein at least some of the bits transmitted during iterations of step b are output from the second data rate buffer.

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33. (NEW) A method as recited in claim 32, wherein the output bit stream includes time division multiplexing of at least the first data stream and second data stream.

34. (NEW) A method as recited in Claim 32, wherein all bits transmitted during iterations of step b are output from the second data rate buffer.

35. (NEW) A method as recited in Claim 32, wherein the first subplurality of the sequential plurality of time periods comprises every other time period of the sequential plurality of time periods.

36. (NEW) An apparatus for communicating at least first and second digital data streams over a communications link from a source to a destination, the first data stream being a

synchronous data stream having a first average data bit rate, the second data stream being an asynchronous data stream having a second average data bit rate, comprising:

means for clocking the first data stream into a first FIFO buffer;

means for clocking the second data stream into a second FIFO buffer;

wherein the first and second data rate buffers define a next out data bit for outputting in response to a clock-out signal; and

means for transmitting, over the communication link, an output bit stream, at an output data bit rate, wherein the output bit stream includes a sequential plurality of time periods for transmitting a data bit and wherein the means for transmitting comprises:

a) means for outputting the next out bit from the first FIFO to the communications link during one of a first subplurality of time periods of the sequential plurality of time periods;

b) means for transmitting a bit, during one of a second subplurality of time periods of the sequential plurality of time periods;

means for causing steps a and b to be repeated so that at least some of the bits transmitted during one of the second subplurality of time periods are output from the second FIFO.

37. (NEW) An apparatus as recited in claim 36, wherein the output bit stream is provided by time division multiplexing of at least the first data stream and second data stream.

38. (NEW) An apparatus as recited in Claim 36, wherein all bits transmitted during any of the second subplurality of time periods are output from the second FIFO.

39. (NEW) An apparatus as recited in Claim 36, wherein the first subplurality of time periods includes every other time period of the sequential plurality of time periods.

40. (NEW) A computer-readable medium for communicating at least first and second digital data streams over a communications link from a source to a destination, the computer-readable medium carrying one or more sequences of one or more instructions which, when executed by one or more processors causes the one or more processors to perform the steps of:

receiving the first data stream, the first data stream being a synchronous data stream having a first average data bit rate;

clocking the first data stream into a first data rate buffer;

receiving the second data stream, the second data stream being an asynchronous data stream having a second average data bit rate;

clocking the second data stream into a second data rate buffer;

wherein the first and second data rate buffers define a next out data bit for outputting in response to a clock-out signal; and

transmitting, over the communication link, an output bit stream, at an output data bit rate, wherein the output bit stream includes a sequential plurality of time periods for transmitting a data bit and wherein the transmitting includes

a) outputting the next out data bit from the first data rate buffer on the communications link during one of a first subplurality of the sequential plurality of time periods;

b) transmitting a bit, during a second subplurality of the sequential plurality of time periods; and

repeating steps a and b to define a plurality of iterations of step a and step b wherein at least some of the bits transmitted during iterations of step b are output from the second data rate buffer.

41. (NEW) A computer-readable medium as recited in claim 40, further comprising one or more additional instructions which, when executed by the one or more processors, cause the one or more processors to cause the output bit stream to include time division multiplexing of at least the first data stream and the second data stream.

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42. (NEW) A computer-readable medium as recited in Claim 40, wherein all bits transmitted during iterations of step b are output from the second data rate buffer.

43. (NEW) A computer-readable medium as recited in Claim 40, wherein the first subplurality of the sequential plurality of time periods comprises every other time period of the sequential plurality of time periods.